

ROAD TO HUDSON BAY

Plan for Short Cut to Europe Recently Revived.

SIX RAILWAYS NOW PROJECTED

Mr. Hill, who once ridiculed the scheme as impractical, one of the promoters—New Outlet Receives Momentum from Great Corps in Northwest—Some Interesting Data.

The promise of returning prosperity, the unexampled harvests of the Northwest, and the struggle into which the freight-carrying roads, the lake carriers, and the Canadian routes have been involved, gives added interest to the projects launched nearly two years ago as the natural and about the only solution of the freight problem in the United States and Canadian Northwest.

In the early part of 1901 six different charters were taken out for as many railroad schemes connecting that great wheat-producing region with Hudson Bay. These projects were thrown into obscurity by the financial stringency of last year, but they are once more being talked about, not only as possibilities, but as probabilities. The moving of the crops this year accentuates the need of this Northern outlet, as the car shortage of a year and a half ago did.

Mr. Hill Changes Front. One of the six charters was obtained by James J. Hill, who used to ridicule a Hudson Bay road as a venture that would be "snowed up ten months of the year and feed up the other two."

The Hill charter plans to feed the freight of the Dakotas and Minnesota into the Saskatchewan Valley and from the Saskatchewan to Hudson Bay. Builders have been at work on the southern end of this project.

Another of the Hudson Bay charters is owned by the new Canadian transcontinental line—the Mackenzie-Mann road. Of the 40 miles needed to connect Churchill with the railroads of the Saskatchewan, the Mackenzie-Mann road has already eighty built, a railroad with trains running, not "just an iron tonic for the cows," as the funny papers have always described roads to Hudson Bay.

Details of the Projects. Two other projects have been galvanized into life by the schemes for a Hudson Bay route, says the Review of Reviews. For years Canada has talked of a deep-water canal up the Ottawa, from the St. Lawrence to the Great Lakes. Suddenly surveys are set to work estimating the cost of a canal that would connect Lake Superior with ocean traffic. The cost, it may be said, is estimated at \$125,000,000.

Then around Hudson Bay is a vast unorganized territory—Keewatin, about the size of Germany. The western provinces of Manitoba and Saskatchewan suddenly awaken to the fact that each wants an extension of its boundaries across Keewatin for a seaport on Hudson Bay.

Roughly speaking, Churchill, which will be the seaport of the Hudson Bay routes, is just 1,000 miles from the grain areas of Hills roads. New York is 2,000 miles. Churchill is 1,500 miles from Oregon. New York is nearly 3,000.

Says Premier Laurier, in answer to a request for a road from ex-Premier Greenway, of Manitoba: "I agree, the time has come for the railroad to Hudson Bay. The statute books contain a standing offer of 12,000 acres of land a mile along the line of this railroad, and if this is not sufficient encouragement for promoters, other means must be found."

Open for Five Months. As to the question of the practicability of the Churchill Harbor, the writer quotes records showing that it has always an open season of five months. In favorable seasons this is extended to seven months.

The harbor itself could not have been better if it had been built up to order. It is a direct 50-mile plain, open, deep-water, sail from the west end of the straits—no shoals, no reefs, deep enough for the deepest-draft keel that ever sailed the sea. This is a captain of the big war ships know it have bodies up to Montreal or New York. At New York deep-draft ships have to wait the tide both for approach and departure; and on the St. Lawrence ships are always taking a mud bath on the shoals.

Over against this advantage, let it be stated frankly, Churchill, summer and winter, is subject to just as furious gales as ever battered the iron rocks of Newfoundland. One other danger, recalled, Churchill must be noted. Five miles out the bay is open all the year round, but as the cold becomes intense, what is known as "frost drift" is piled up on the sea, obscuring everything.

Entrance is Narrow. The entrance between the two headlands is not a half mile wide, against the tremendous current of river and ebb tide, but the depth is unapproachable. Fort Churchill is the harbor inside, a magnificent expanse of land-locked water, with the fur post five miles up the river.

But all railroad projects to Hudson Bay hinge not on Churchill harbor, but on the straits. Can they be navigated? How long are they open? Even if they can be navigated by ocean-going vessels, will they be of any avail for a fast Atlantic route? Hudson Straits are really a deep gorge which the ice of the arctic world—the ice of prehistoric ages—has cut and grooved and torn furiously out of the solid rock, and torn furiously out of the solid rock, and torn furiously out of the solid rock.

Reports are Incomplete. The Canadian government has sent two special expeditions (in 1888 and 1897) to test the navigation of the straits, and one general expedition to navigate the northern waters (1903-04), but the question has become so terribly political—so much a question of East versus West—that the official reports on the expedition are more noteworthy for what they leave unsaid than for what they say.

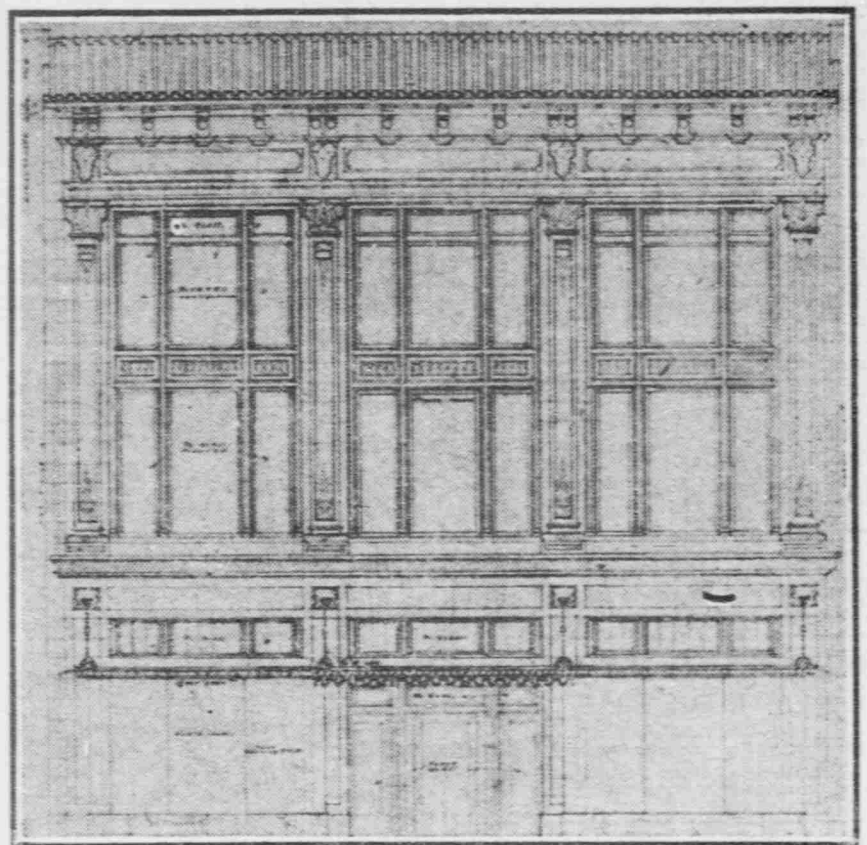
The Gordon expedition of 1888 and the Wakeham expedition immediately thereafter, which Hudson Bay is open all the year round; an open current flows through the straits winter as well as summer, but owing to ice drifts this current is closed to navigation after November, and not open again till June—that is, there are always five months when the straits can be navigated, sometimes six. There was also discovered, just inside the eastern entrance to the straits, a splendid landlocked harbor, or haven of refuge—Port Burwell—sheltered from all winds but the south.

Iron and Steel Look Bright. The leading trade papers present hopeful views of the iron and steel situation, the favorable agricultural conditions bringing a demand for the lighter lines used by farmers back to near normal, while the prospective planting of orders for about 12,000 new cars has stimulated activity in some other departments. In the heavier lines, however, business is still spotty and no new orders of consequence have been secured by the rail mills.

TYPICAL HOMES IN CLEVELAND PARK.



IMPROVEMENT IN NEW YORK AVENUE.



Front elevation of Chesley & Chesley building, from design drawn by Wood, Dana & Deming.

INDUSTRIAL FACTS FROM MANY SOURCES

The human body contains over 2,000 miles of tubing.

The best beet root yields an average of 12 per cent of sugar.

Russia's death rate is the highest in Europe, 41 per 1,000 each year.

Seventy per cent of the gold in the possession of man is in the form of coin.

So powerful are the jaws of a wasp that the insect has been known to puncture a seashell.

Japan has thirty-two timepiece factories which annually produce \$80,000 worth of clocks and watches.

A \$10,000,000 hydro-electric plant is to be established by the Japanese prefecture of Shizuoka.

In a recent test of Paris rainwater bacteria were found at the rate of about fifty-seven to the cubic inch.

Drying fruit by the sun's rays is being scientifically done on an enormous scale at San Jose, Cal.

Humming birds are disappearing from Trinidad. In 1865 there were eighteen species; now there are only five.

A Danish expedition has gone to Greenland to teach the Eskimos how to fish profitably by modern means.

Twelve all-steel sprinkling cars recently were completed for use on the Chicago City Railway Company's tracks.

The aged inventor of the Mauser rifle has now perfected a new weapon which fires twenty-five shots at a single loading.

In the world last year there was produced 96,910 metric tons of lead, as compared with 98,174 tons in 1905.

A new type of torpedo, with which the navy is experimenting, bore its way into the hull of a ship before exploding.

Many excellent voices are ruined, according to the French Academy of Medicine, by practicing in too small rooms.

The human lungs exhale each day an amount of carbon which, if solidified, would equal a lump of coal weighing half a ton.

Some of the finest French tapestry is manufactured so slowly that an artist cannot produce more than two square feet in a year.

Two hundred and forty thousand wooden paving blocks a day are turned out by a machine owned by the municipality of Paris.

A Western Nebraska farm is being successfully irrigated by a home-made windmill, the fans of which were originally tin boxes.

A new supply of rubber, believed to be practically inexhaustible, has been discovered in a never-before-explored section of Brazil.

At the rate that work is now going on, the tunnel through the Cordilleras, to connect Valparaiso and Buenos Ayres, will be completed in 1910.

A photographic process which gives both perspective and relief is the invention of Prof. Lippman, of Paris, a pioneer in color photography.

The second largest masonry arch in the world, having an arch of 75 feet and a span of 28.9 feet, recently was completed on an Austrian railroad.

Already electric power generated by Niagara Falls is distributed 125 miles, and the Canadian government is planning to more than double the distance.

Berlin is having great success with its experiments with a suspended monorail railroad, which is operated advantageously in extremely narrow streets.

Wireless telephony records recently were broken when an invention of three French naval lieutenants was operated successfully for a distance of 310 miles.

A big Pennsylvania coal mining company will erect an extensive plant to treat railroad ties and other timbers with creosote and zinc chloride to extend their life.

The rainless Atacama desert of Northern Chile is the scene of the greatest industry of the kind in the world, yielding enormous quantities of nitrates for fertilizers.

The use of the microphone in fishing is undergoing a series of experiments in Europe. The noise made by schools of the fishy tribe is transmitted by the delicate instrument.

Using extremely delicate instruments, the French Academy of Science is experimenting with an unknown force, supposed to be electrical in nature, given off by the human body.

The familiar shaving paste known as "creme d'orange" is made by melting one part of caustic potash into three parts of lard, with sufficient essence of almonds to give it a flavor.

After working on his theory for ten years, Gen. Goulet, a member of the Institution of Naval Architects, has announced that he can render ships both unsinkable and uncapable.

The Department of Agriculture has demonstrated that Chinese and Japanese bamboo can be profitably grown in this country, and will experiment with drought-resistant forms from India.

China's new torpedo-boat destroyers, built in Germany, have an indicated horsepower of 6,000 and made 32.2 knots on their trial trip and 32.5 knots with a cruising load of fuel on board.

After spending fifteen years in making minute observations of the moon, Prof. Brown, of Yale University, will spend ten years more in studying them to determine the moon's exact position.

A new coal field, estimated to contain 5,000,000,000 tons of anthracite, will be developed as soon as railroads now under construction in the Crowns Nest Mountain region of Alberta.

With a blowpipe, using a mixture of acetylene and oxygen, steel and copper sheets a quarter of an inch thick may be welded more cheaply than riveted. A temperature of 6,000 degrees is used.

To cover a pulley with leather, use a warm solution of crushed nutgalls in eight parts of rainwater on the leather and a concentrated solution of glue on the pulley, which also should be warmed.

After thorough tests covering a number of years, the officials of the Burlington Railroad have declared that concrete ties are unsatisfactory, and have decided to build a large wood-preserving plant.

By wrapping them in a new vegetable paper, fish caught off the Portuguese coast are delivered in Belgium sixteen days later in better condition, as regards freshness and flavor, than when packed in ice.

When a pest of eels threatened to interfere with the operation of the Snow Mountain Power Company, in California, a wire netting was sunk in the stream and thousands of the eels were killed by electricity.

Despite opposition from the Japanese government, the Department of Agriculture has succeeded in obtaining 45,000 plants of the grasses used in matting, and will experiment with them in several Southern States.

American financial aid has been asked for the erection at Montpellier, France, of a memorial to the late Gustav Fox, whose work on the grapevine phylloxera and other viticultural questions are well known to the horticultural world.

Despite the fact that fires are fought more scientifically in the United States than in any other nation, the losses per capita in the last five years have been nearly ten times as great as in the leading six European nations.

Francis Darwin, son of the famous Charles Darwin, whose theories he has exceeded in many ways, has been elected president of the British Association, and on September 2 will in a speech defend his belief that plants have minds and are intelligent.

STORY OF THE SOO COVERS 300 YEARS

Continued from Page One.

It was not until 1820 that the authority of our government was exercised there, when Gen. Cass went up from Mackinac Island with a force of sixty-six men in canoes to establish a military post. They found the British flag still flying. Cass pulled it down with his own hand, raised the Stars and Stripes in its place, and obtained permission of the Indians to build a fort, which is now known as Fort Brady.

In 1828 the Rev. Abel Bingham arrived to preach the Gospel to the little white settlement and endeavored to convert the Indians. Miss Charlotte Johnson, afterward wife of the archbishop of the Church of England in Canada, was his first convert and interpreter.

Up to 1845 there was only infrequent communication with Detroit and Chicago, chiefly maintained by the sailing vessels of the fur company, but in the spring of that year the steamer Detroit began to make regular weekly voyages. The next year another steamer was put on to accommodate the increased traffic caused by the discovery of copper and iron.

Fight for a Ship Canal. Michigan was admitted into the Union as a State in 1836, and the governor, in his first message to the legislature, advocated the construction of a canal around the rapids of the Saint Ste. Marie. The legislature responded promptly by appropriating \$25,000 for a survey, which was made by John Almy.

In his report he recommended a canal 75 feet wide, 19 feet deep, with two locks, each 100 feet long, 32 feet wide, and 19 feet deep. In September, 1838, the State authorities entered into a contract with Messrs. Smith and Driggs, of Buffalo, to construct the canal at a cost of \$110,544, and they began work. But the Federal authorities, claiming jurisdiction, sent a detachment of soldiers to the scene of operations and forcibly ejected the workmen.

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DESIGNED WHITE HOUSE.

Claim Made that Irish Architect Made Plans for Structure Here.

Dublin, Aug. 28.—The Freeman's Journal is authority for the statement that the White House, the official residence of the American President, was the work of an Irish architect, James Hoban, who was born in Kilkenny in 1758.

When only twenty-two years of age, according to that newspaper, he won a medal from the Royal Dublin Society for "drawings for brackets, stairs, roof," etc., which is now in the possession of his grandson, Mr. James Hoban, a resident of the United States.

The popular name of "White House," the Freeman's Journal says, is really due to Hoban's thought of painting the crown-stone fronting the exterior wall white, due to discoloration caused by smoke and fire. The White House was built according to Hoban's designs and under his supervision, both before and after the destruction of the newly created public buildings of Washington by the British in 1814. The White House was not completed until 1825, and Hoban lived until 1831.

According to the same authority, four other Irishmen were associated with Hoban in the construction of the building of which he was the architect. Cornelius MacDermott Roe, Patrick Roe, and John Delahanty had the contract for the brick and stone work, and John Kearney for the plastering.

To guide them, they adopted his suggestion and authorized him to act in their name.

Harvey at once sought the late James F. Joy and other prominent and progressive men in Detroit, secured their cooperation, sent East for engineers, obtained options upon stone quarries, and when the legislature of Michigan had authorized action was prepared to submit a bid for the construction of the canal, which was accepted April 15, 1833. The Fairbanks brothers were the principals, and associated with them were, J. W. Brooks, Erasmus Corning, August Belmont, H. Dwight, Jr., and Thomas Dwyer, and their sureties were Franklin Moore, George F. Potter, John Owen, James F. Joy, and Henry F. Baldwin, of Detroit.

As soon as the contract was signed Harvey secured authority to select the lands to be donated in aid of the canal, and, acting upon knowledge gained by his explorations of the previous summer, he located them upon the northern peninsula, including the copper belt north of Houghton, from which not less than \$500,000 worth of copper has since been taken.

The canal was finished April 19, 1855, twenty-two and a half months from the day that Harvey broke ground. It was 5,700 feet long, 54 feet wide at the bottom, and 100 feet wide at the surface of the water, and 13 feet deep. There were two locks, each 70 feet wide and 114 feet deep, with a life of 9 feet each. The actual cost was \$99,822.66. The first vessel to pass up into Lake Superior was the steamer Illinois, and the steamer Baltimore was the first to pass down.

Canal Is Made Free. From 1855 to 1881 the canal was controlled by the State of Michigan, and a toll of 62 cents a ton was charged to cover operating expenses. This was afterward reduced to 25 cents, with a minimum of \$1 per vessel. The canal was transferred to the Federal government in 1881 and has since been free.

What is now called the Weitzel lock, in honor of Gen. Godfrey Weitzel, of the United States army, was designed by Gen. Orlando M. Poe, of the United States army, and built by Alfred Noble between 1870 and 1871. It is 115 feet long, 80 feet wide, and 17 feet deep. The Canadian canal was built in 1885-1886 by W. S. McNeill Thompson. It is 500 feet long, 60 feet wide, and 22 feet deep. The Poe lock, built by Gen. Orlando M. Poe, from 1887 to 1888, is 80 feet long, 100 feet wide, and 22 feet deep.

Since 1892 the American canal has been deepened and lengthened, so that it is now one and three-fifths miles long, 50 feet wide at the upper entrance, 150 feet at the lower entrance, 108 feet at the canal gate, and 270 feet wide above the locks. Hydraulic power is used for operating the American locks, electricity generated by the rapids is used for operating the Canadian locks. A vessel can be put through either of the American locks in about seven minutes and through the Canadian locks in eight minutes, but the actual time averages twenty-nine minutes, because of the slow movement of the boats in entering and leaving.

The commerce of the lakes is so great that a long line of boats laden with coal, ore, wheat, and merchandise is always waiting at both entrances, and this delay is very costly in a short season of navigation. The shipowners have adopted many devices for saving time. Sailing up the lakes you can see coal docks amid-stream, where vessels going up and down can stop en route to fill their bunkers. It is only necessary for them to slow down their speed and run alongside, when the patent loading apparatus will in a few minutes transfer from the coal bins on the side of the ship to the bunkers of the vessel enough fuel to carry them to the end of their voyages.

Crop Production in Cape Colony. From figures of crop returns collected by the government, South Africa, a London publication, quotes the following summary of the values of Cape Colony production in the year 1902: Crops, \$2,213,329; minerals, \$1,313,142; animal products, \$4,732,230; other products, \$4,856,090; fruit, \$378,127; a total of \$14,210,818. The value of the live stock in the colony (figures for 1904, with estimates for natural increases) was \$17,584,022.

FOR SALE

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